

FACT SHEET FOR NPDES PERMIT NO. WA0037427
CITY OF WASHOUGAL

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INTRODUCTION

The Federal Clean Water Act (FCWA, 1972, and later modifications, 1977, 1981, and 1987) established water quality goals for the navigable (surface) waters of the United States. One of the mechanisms for achieving the goals of the Clean Water Act is the National Pollutant Discharge Elimination System of permits (NPDES permits), which is administered by the Environmental Protection Agency (EPA). The EPA has delegated responsibility to administer the NPDES permit program to the state of Washington on the basis of Chapter 90.48 RCW which defines the Department of Ecology's authority and obligations in administering the wastewater discharge permit program.

The regulations adopted by the state include procedures for issuing permits (Chapter 173-220 WAC), technical criteria for discharges from municipal wastewater treatment facilities (Chapter 173-221 WAC), water quality criteria for surface and ground waters (Chapters 173-201A and 200 WAC), and sediment management standards (Chapter 173-204 WAC). These regulations require that a permit be issued before discharge of wastewater to waters of the state is allowed. The regulations also establish the basis for effluent limitations and other requirements which are to be included in the permit. One of the requirements (WAC 173-220-060) for issuing a permit under the NPDES permit program is the preparation of a draft permit and an accompanying fact sheet. Public notice of the availability of the draft permit is required at least thirty days before the permit is issued (WAC 173-220-050). The fact sheet and draft permit are available for review (see Appendix A--Public Involvement of the fact sheet for more detail on the Public Notice procedures).

The fact sheet and draft permit have been reviewed by the Permittee. Errors and omissions identified in this review have been corrected before going to public notice. After the public comment period has closed, the Department will summarize the substantive comments and the response to each comment. The summary and response to comments will become part of the file on the permit and parties submitting comments will receive a copy of the Department's response. The fact sheet will not be revised. Comments and the resultant changes to the permit will be summarized in Appendix D--Response to Comments.

GENERAL INFORMATION

Applicant:	City of Washougal
Facility Name and Address:	City of Washougal Wastewater Treatment Plant 1701 C Street Washougal, Washington 98671
Type of Treatment:	Extended air activated sludge (oxidation ditch)
Discharge Location:	Columbia River (@ RM 123.5) Latitude: 45° 34' 11" N. Longitude: 122° 20' 45" W.
Water Body ID Number:	WA-CR-1010

BACKGROUND INFORMATION

DESCRIPTION OF THE FACILITY

HISTORY

The original facility was designed and constructed in late 1970s as a aerated facultative lagoon process prior to discharge to the Columbia River. The facility consisted of a headworks with manually cleaned bar screen, 6" Parshall flume, a comminuter, and an influent pump station (two screw pumps); four separate treatment basins (first basin is divided by a floating curtain wall, cell 1A is fully mixed with three aerators for a total of 120 hp and cell 1B is partial mixed with six aerators for a total of 45 hp plus one aerator at 40 hp; basin 2 and 3 provide facultative treatment with some solids removal; basin 3 discharges to the chlorination basin; basin 4 was converted to a sludge lagoon in 1993; and discharge from the chlorine contact chamber flows to the effluent pump station then to the river. The facility was designed for a capacity of 1.13 MGD and a maximum monthly average BOD₅ loading of 1500 lbs/day.

Because of the increase in development within the City's urban growth area, the City has completed the planning, design and construction process for an upgrade to the wastewater treatment facilities. The new upgrade was completed in July 1999.

Treatment Processes

The Existing Treatment Plant: The facility consists of an extended aeration activated sludge system. The facility consists of 1) headworks with inclined spiral screen, new submersible pumps, and flow meter; 2) oxidation ditch activated sludge aeration basin; 3) secondary clarifier; disinfection by chlorination and chlorine contact basins; 5) effluent metering; 6) effluent pump station; 7) outfall to Columbia River. The first existing lagoon basin was retained as storage for peak influent flows. The other three lagoons are used for sludge storage. The facility was designed for a capacity of 2.24 MGD and a maximum monthly average BOD₅ loading of 3960 lbs/day.

Treatment Plant Classification: As of the effective date of this permit, the classification of this plant is II.

Industrial Users: The following industries are permitted through a State Waste Discharge Permit to discharge to the city's sewer collection system: Fiberweb (non-woven fabrics @ maximum flow = 35,000 gpd), Union Carbide (crystal manufacturer @ maximum flow = 85,000 gpd) and Vinings (chemical manufacturer @ maximum flow = 64,000 gpd).

COLLECTION SYSTEM STATUS

The City operates and maintains approximately 30 miles of sanitary sewer collection lines and mains. The majority of the collection system was constructed in 1968. The system includes six duplex sewage pumping stations and approximately 8,000 feet of force mains.

The existing collection system consists mostly of concrete pipe. A large portion of the system was installed in 1968. Because of the age of the pipe and possible construction techniques, the system experiences a large amount of inflow and infiltration (I/I). The City has identified and is actively completing the construction of a number of I/I projects throughout the City's service area. The City's I/I work has resulted in a reduction in peak flows at the WWTP.

Discharge Outfall

Secondary treated and disinfected effluent is discharged from the facility via 7,200 feet of 20-inch diameter ductile iron force main 250 feet into the Columbia River at low flow. The last 100' is a diffuser with six vertical port risers on 19-foot centers. There are six 4" risers with 4x3" reducing 45-degree

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elbows directed downstream. Five of the diffusers are presently open. The hydraulic capacity of the outfall is designed for the future (2014) flow.

An estimate of the acute dilution factor for this discharge is obtained from the March 1995 Wastewater Facility Plan (1995 FP), approved by the Department of Ecology (Department) on October 13, 1997. The mixing zone study determined that with the five ports the acute and chronic dilution ratios for the 2014 design flows would be 17.5:1 and 63.0:1, respectively.

RESIDUAL SOLIDS

The treatment facilities remove solids during the treatment of the wastewater at the headworks (grit and screenings), and at the secondary clarifier, in addition to incidental solids (rags, scum, and other debris) removed as part of the routine maintenance of the equipment. Grit, rags, scum and screenings are drained and disposed of as solid waste at the local landfill. Solids removed from the clarifier are stored in the sludge lagoons and periodically (8 to 10 years) land applied under a permit from the Clark County Health District.

PERMIT STATUS

The previous permit for this facility was issued on February 17, 1988 and modified on August 10, 1994. The previous permit placed effluent limitations on 5-day Biochemical Oxygen Demand (BOD₅), Total Suspended Solids (TSS), pH, Fecal Coliform bacteria, chlorine residual, and ammonia (NH₃-N).

Parameter	Previous Permit Limits	
	Monthly Average	Weekly Average
BOD	30 mg/L, 282 lb/day 85 % removal	45 mg/L, 424 lb/day
TSS	75 mg/L, 706 lb/day	110 mg/L, 1036 lb/day
Fecal Coliform	200/100 mL	400/100 mL
Chlorine Residual	0.15 mg/L	0.32 mg/L
Ammonia (NH ₃ -N)	20.9 mg/L	31.3 mg/L
pH	Shall not be outside the range of 6 to 9 standard units	

An application for permit renewal was submitted to the Department on December 22, 1997 and accepted by the Department on October 29, 1998.

SUMMARY OF COMPLIANCE WITH THE PREVIOUS PERMIT

The facility received its last inspection on April 17, 1997. A compliance inspection was conducted on May 29, 1996.

During the history of the previous permit, the Permittee has not remained in compliance, based on Discharge Monitoring Reports (DMRs) submitted to the Department and inspections conducted by the Department. A summary of the permit effluent limitation compliance for last four years (1995 through 1998) shows that the WWTP has violated BOD₅ on a regular basis. A review of the DMRs shows that the 85 percent removal requirement was not met 18 times, concentrations (30 mg/L) not met 26 times, and discharge loadings not met 8 times. There were also a number of violations for fecal coliform (5), chlorine residual (1), pH (4, max.) and ammonia (2). Special Condition S6. of the previous permit

provided a compliance schedule for upgrades. The upgrades were not completed on schedule due to delays in obtaining proper permits and in construction of the planned upgrades. Order No. DE97WQ, issued May 29, 1997, extended construction completion date to January 1, 1999.

WASTEWATER CHARACTERIZATION

The concentration of pollutants in the discharge was reported in the NPDES application and in discharge monitoring reports (August 1996 through July 1998). The effluent is characterized as follows:

Table 1: Effluent Wastewater Characterization

PARAMETER	Annual Average (new)	Lowest Monthly Average (new)	Highest Monthly Average (new)	Lowest Weekly Average (new)	Highest Weekly Average (new)
Flow, MGD	0.983 (1.75)	0.597 (1.60)	1.564 (2.24)		
BOD ₅ , mg/l	34.5	13.0	61.0 (30.0)	13.0	69.0
BOD ₅ , % removal	86%	69% (85%)	93%		
BOD ₅ , #/day	199	111	376 (560)	127	506
TSS, mg/l	30.6	11.0	55.0 (30.0)	12	76
TSS, % removal	89%	73% (85%)	97%		
TSS, #/day	177	47	319 (560)	77	452
Fecal Coliform, #/100mL			212 (200)	11	749 (400)
				Minimum Day (new)	Maximum Day (new)
Chlorine Residual, mg/L	0.07	0.03	0.12 (0.15)	0.03	0.24 (0.23)
Ammonia, as N, mg/L	9.201	0.294	180.5 (20.9)	0.29	31.95 (31.3)
Temperature, °C				19.5	21.6
pH (range 6.0 to 9.0)				6.95 (6.0)	9.40 (9.0)

PROPOSED PERMIT LIMITATIONS

Federal and state regulations require that effluent limitations set forth in a NPDES permit must be either technology- or water quality-based. Technology-based limitations for municipal discharges are set by regulation (40 CFR 133, and Chapters 173-220 and 173-221 WAC). Water quality-based limitations are based upon compliance with the Surface Water Quality Standards (Chapter 173-201A WAC), Ground Water Standards (Chapter 173-200 WAC), Sediment Quality Standards (Chapter 173-204 WAC) or the National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992.) The most stringent of these types of limits must be chosen for each of the parameters of concern. Each of these types of limits is described in more detail below.

The limits in this permit are based in part on information received in the application. The effluent constituents in the application were evaluated on a technology- and water quality-basis. The limits necessary to meet the rules and regulations of the state of Washington were determined and included in this permit. The Department does not develop effluent limits for all pollutants that may be reported on the application as present in the effluent. Some pollutants are not treatable at the concentrations reported, are not controllable at the source, are not listed in regulation, and do not have a reasonable potential to cause a water quality violation. If significant changes occur in any constituent, as described in 40 CFR 122.42(a), the Permittee is required to notify the Department.

DESIGN CRITERIA

In accordance with WAC 173-220-150 (1)(g), flows or waste loadings shall not exceed approved design criteria.

The design criteria for this treatment facility are taken from the March 1995 facilities plan report prepared by Wallis Engineering and are as follows:

Table 2: Design Standards for Washougal WWTP.

Parameter	Design Quantity
Monthly average flow (max. month)	2.24 MGD
Monthly average dry weather flow	1.60 MGD
Monthly average wet weather flow.....	1.90 MGD
Instantaneous peak flow.....	6.65 MGD
BOD ₅ average influent loading (max. month)	3,960 lb./day
TSS average influent loading (max. month)	3,960 lb./day
Design population equivalent (2014).....	17,900

TECHNOLOGY-BASED EFFLUENT LIMITATIONS

Municipal wastewater treatment plants are a category of discharger for which technology-based effluent limits have been promulgated by federal and state regulations. These effluent limitations are given in the Code of Federal Regulations (CFR) 40 CFR Part 133 (federal) and in Chapter 173-221 WAC (state). These regulations are performance standards that constitute all known available and reasonable methods of prevention, control, and treatment for municipal wastewater.

The following technology-based limits for pH, fecal coliform, BOD₅, and TSS are taken from Chapter 173-221 WAC are:

Table 3: Technology-based Limits.

Parameter	Limit
pH:	shall be within the range of 6 to 9 standard units.
Fecal Coliform Bacteria	Monthly Geometric Mean = 200 organisms/100 mL Weekly Geometric Mean = 400 organisms/100 mL
BOD ₅ (concentration)	Average Monthly Limit is the most stringent of the following: - 30 mg/L - may not exceed fifteen percent (15%) of the average influent concentration Average Weekly Limit = 45 mg/L
TSS (concentration)	Average Monthly Limit is the most stringent of the following: - 30 mg/L - may not exceed fifteen percent (15%) of the average influent concentration Average Weekly Limit = 45 mg/L

The following technology-based mass limits are based on WAC 173-220-130(3)(b) and 173-221-030(11)(b).

Monthly effluent mass loadings (lbs/day) were calculated as the maximum monthly design flow 2.24 MGD) x Concentration limit (30 mg/L) x 8.34 (conversion factor) = mass limit 560 lb./day.

The weekly average effluent mass loading is calculated as 1.5 x monthly loading = 840 lbs/day.

SURFACE WATER QUALITY-BASED EFFLUENT LIMITATIONS

In order to protect existing water quality and preserve the designated beneficial uses of Washington's surface waters, WAC 173-201A-060 states that waste discharge permits shall be conditioned such that the discharge will meet established Surface Water Quality Standards. The Washington State Surface Water Quality Standards (Chapter 173-201A WAC) is a state regulation designed to protect the beneficial uses of the surface waters of the state. Water quality-based effluent limitations may be based on an individual waste load allocation (WLA) or on a WLA developed during a basin-wide total maximum daily loading study (TMDL).

NUMERICAL CRITERIA FOR THE PROTECTION OF AQUATIC LIFE

"Numerical" water quality criteria are numerical values set forth in the State of Washington's Water Quality Standards for Surface Waters (Chapter 173-201A WAC). They specify the levels of pollutants allowed in a receiving water while remaining protective of aquatic life. Numerical criteria set forth in the Water Quality Standards are used along with chemical and physical data for the wastewater and receiving water to derive the effluent limits in the discharge permit. When surface water quality-based limits are more stringent or potentially more stringent than technology-based limitations, they must be used in a permit.

NUMERICAL CRITERIA FOR THE PROTECTION OF HUMAN HEALTH

The state was issued 91 numeric water quality criteria for the protection of human health by the U.S. EPA (EPA 1992). These criteria are designed to protect humans from cancer and other disease and are primarily applicable to fish and shellfish consumption and drinking water from surface waters.

NARRATIVE CRITERIA

In addition to numerical criteria, "narrative" water quality criteria (WAC 173-201A-030) limit toxic, radioactive, or deleterious material concentrations below those which have the potential to adversely affect characteristic water uses, cause acute or chronic toxicity to biota, impair aesthetic values, or adversely affect human health. Narrative criteria protect the specific beneficial uses of all fresh (WAC 173-201A-130) and marine (WAC 173-201A-140) waters in the state of Washington.

ANTIDEGRADATION

The State of Washington's Antidegradation Policy requires that discharges into a receiving water shall not further degrade the existing water quality of the water body. In cases where the natural conditions of a receiving water are of lower quality than the criteria assigned, the natural conditions shall constitute the water quality criteria. Similarly, when the natural conditions of a receiving water are of higher quality than the criteria assigned, the natural conditions shall constitute the water quality criteria. More information on the State Antidegradation Policy can be obtained by referring to WAC 173-201A-070.

The Department has reviewed existing records and is unable to determine if ambient water quality is either higher or lower than the designated classification criteria given in Chapter 173-201A WAC; therefore, the Department will use the designated classification criteria for this water body in the proposed permit. The discharges authorized by this proposed permit should not cause a loss of beneficial uses.

CRITICAL CONDITIONS

Surface water quality-based limits are derived for the waterbody's critical condition, which represents the receiving water and waste discharge condition with the highest potential for adverse impact on the aquatic biota, human health, and existing or characteristic water body uses.

MIXING ZONES

The Water Quality Standards allow the Department to authorize mixing zones around a point of discharge in establishing surface water quality-based effluent limits. Both "acute" and "chronic" mixing zones may be authorized for pollutants that can have a toxic effect on the aquatic environment near the point of discharge. The concentration of pollutants at the boundary of these mixing zones may not exceed the numerical criteria for that type of zone. Mixing zones can only be authorized for discharges that are receiving all known, available, and reasonable methods of prevention, control and treatment (AKART) and in accordance with other mixing zone requirements of WAC 173-201A-100.

The National Toxics Rule (EPA, 1992) allows the chronic mixing zone to be used to meet human health criteria.

DESCRIPTION OF THE RECEIVING WATER

The facility discharges to the Columbia River at river mile 123.5 that is designated as a Class A receiving water in the vicinity of the outfall. Other nearby point source outfalls include the Camas WWTP (**Camas Slough at Columbia River Mile 120.0±**), and Camas pulp and Paper Mill WWTP (**RM 120.5±**). Characteristic uses include the following:

water supply (domestic, industrial, agricultural); stock watering; fish migration; fish rearing, spawning and harvesting; wildlife habitat; primary contact recreation; sport fishing; boating and aesthetic enjoyment; commerce and navigation.

Water quality of this class shall meet or exceed the requirements for all or substantially all uses.

SURFACE WATER QUALITY CRITERIA

Applicable criteria are defined in Chapter 173-201A WAC for aquatic biota. In addition, U.S. EPA has promulgated human health criteria for toxic pollutants (EPA 1992). Criteria for this discharge are summarized below:

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Fecal Coliforms	100 organisms/100 mL maximum geometric mean
Dissolved Oxygen	8 mg/L minimum
Temperature	20 degrees Celsius maximum or incremental increases above background
pH	6.5 to 8.5 standard units
Turbidity	less than 5 NTUs above background
Toxics	No toxics in toxic amounts (see Appendix C for numeric criteria for toxics of concern for this discharge)

CONSIDERATION OF SURFACE WATER QUALITY-BASED LIMITS FOR NUMERIC CRITERIA

Pollutant concentrations in the proposed discharge exceed water quality criteria with technology-based controls, which the Department has determined to be AKART. A mixing zone is authorized in accordance with the geometric configuration, flow restriction, and other restrictions for mixing zones in Chapter 173-201A WAC and are defined as follows:

The dilution factors of effluent to receiving water that occur within these zones have been determined at the critical condition by the use of PLUMES Dilution Model. The dilution factors have been determined to be (from approved March 1995 Facility Plan): Acute @ 17.5, and Chronic @ 63.0.

Pollutants in an effluent may affect the aquatic environment near the point of discharge (near field) or at a considerable distance from the point of discharge (far field). Toxic pollutants, for example, are near-field pollutants--their adverse effects diminish rapidly with mixing in the receiving water. Conversely, a pollutant such as BOD is a far-field pollutant whose adverse effect occurs away from the discharge even after dilution has occurred. Thus, the method of calculating water quality-based effluent limits varies with the point at which the pollutant has its maximum effect.

The derivation of water quality-based limits also takes into account the variability of the pollutant concentrations in both the effluent and the receiving water.

The critical condition for the Columbia River is the seven-day average low river flow with a recurrence interval of ten years (7Q10). Ambient data at critical conditions in the vicinity of the outfall was taken from previous studies which considered both historical data and an intensive monitoring study conducted. The ambient background data used for this permit includes the following from approved 1995 Facilities Plan:

Parameter	Value used
7Q10 low flow	80,900 cfs
Velocity	4.0 cm/sec (0.1312 ft/sec)
Depth	15.5 feet
Width	2,500 feet
Slope	Tidally influenced – but not tidally reversing
Temperature	20 C
pH (high)	8.0
Total Ammonia-N	0.06 mg/L
Hardness	55.0 mg/L as CaCO ₃

BOD₅--This discharge with technology-based limitations results in a small amount of BOD loading relative to the large amount of dilution occurring in the receiving water at critical conditions. Technology-based limitations will be protective of dissolved oxygen criteria in the receiving water.

Temperature and pH--The impact of pH and temperature were modeled using the calculations from EPA, 1988. The input variables were dilution factor 63.0, upstream temperature 20.0 °C, upstream pH 8.0, upstream alkalinity 62 (as mg CaCO₃/L), effluent temperature 22.9 °C, effluent pH of 6, effluent pH of 9, and effluent alkalinity 100 (as mg CaCO₃/L).

Under critical conditions there is no predicted violation of the Water Quality Standards for Surface Waters. Therefore, the technology-based effluent limitation for pH was placed in the permit and temperature was not limited.

Fecal coliform--The numbers of fecal coliform were modeled by simple mixing analysis using the technology-based limit of 400 organisms per 100 ml and a dilution factor of 63.

Under critical conditions there is no predicted violation of the Water Quality Standards for Surface Waters with the technology-based limit. Therefore, the technology-based effluent limitation for fecal coliform bacteria was placed in the proposed permit.

Toxic Pollutants--Federal regulations (40 CFR 122.44) require NPDES permits to contain effluent limits for toxic chemicals in an effluent whenever there is a reasonable potential for those chemicals to exceed the surface water quality criteria. This process occurs concurrently with the derivation of technology-based effluent limits. Facilities with technology-based effluent limits defined in regulation are not exempted from meeting the Water Quality Standards for Surface Waters or from having surface water quality-based effluent limits.

Ammonia, and chlorine were determined to be present in the discharge ion the previous permit. A reasonable potential analysis was conducted on these parameters to determine whether or not effluent limitations would be required with the previous lagoon system. The new treatment process has not been operated at the time this permit was issued to determine if effluent would contain toxic pollutants in concentrations that may cause water quality violations. Therefore, calculated effluent limitations for ammonia and chlorine shall be included in this permit (see Appendix C).

The determination of the reasonable potential for ammonia and chlorine to exceed the water quality criteria was evaluated with procedures given in EPA, 1991 (Appendix C) at the critical condition. The critical condition in this case occurs during low flow period. The parameters used in the critical condition modeling are as follows: acute dilution factor 17.5, chronic dilution factor 63.0, receiving water temperature 20.0 °C, receiving water alkalinity 55 (as mg CaCO₃/L).

The resultant effluent limits are as follows:

Parameter	Average Monthly	Daily Maximum
Total Residual Chlorine	0.16 mg/L	0.33 mg/L
Total Ammonia (as NH ₃ -N)	21.1 mg/L	42.3 mg/L

A reasonable potential was derived for metals (arsenic, copper, lead, mercury, silver, and zinc), to determined if Water Quality Standards will be violated. For the lagoon system, copper and mercury would require an effluent limit in a permit. Since the new facility would have to be operated for a period of time to determine if a permit effluent limit is required, the metals sampling data will be delayed until year three of the permit. The requirement for metals effluent limits will be determined at the next permit

cycle. Water quality criteria for metals in Chapter 173-201A WAC are based on the dissolved fraction of the metal.

The Permittee may provide data clearly demonstrating the seasonal partitioning of the dissolved metal in the ambient water in relation to an effluent discharge. Metals criteria may be adjusted on a site-specific basis when data is available clearly demonstrating the seasonal partitioning in the ambient water in relation to an effluent discharge.

Metals criteria may also be adjusted using the water effects ratio approach established by USEPA, as generally guided by the procedures in USEPA Water Quality Standards Handbook, December 1983, as supplemented or replaced.

WHOLE EFFLUENT TOXICITY

The Water Quality Standards for Surface Waters require that the effluent not cause toxic effects in the receiving waters. Many toxic pollutants cannot be detected by commonly available detection methods. However, toxicity can be measured directly by exposing living organisms to the wastewater in laboratory tests and measuring the response of the organisms. Toxicity tests measure the aggregate toxicity of the whole effluent, and therefore this approach is called whole effluent toxicity (WET) testing. Some WET tests measure acute toxicity and other WET tests measure chronic toxicity.

Acute toxicity tests measure mortality as the significant response to the toxicity of the effluent. Dischargers who monitor their wastewater with acute toxicity tests are providing an indication of the potential lethal effect of the effluent to organisms in the receiving environment.

Chronic toxicity tests measure various sublethal toxic responses such as retarded growth or reduced reproduction. Chronic toxicity tests often involve either a complete life cycle test of an organism with an extremely short life cycle or a partial life cycle test on a critical stage of one of a test organism's life cycles. Organism survival is also measured in some chronic toxicity tests.

In accordance with WAC 173-205-040, the Permittee's effluent has been determined to have the potential to contain toxic chemicals. The proposed permit contains requirements for whole effluent toxicity testing as authorized by RCW 90.48.520 and 40 CFR 122.44 and in accordance with procedures in Chapter 173-205 WAC. The proposed permit requires the Permittee to conduct toxicity testing for one year in order to characterize both the acute and chronic toxicity of the effluent.

If acute or chronic toxicity is measured during effluent characterization at levels that, in accordance with WAC 173-205-050(2)(a), have a reasonable potential to cause receiving water toxicity, then the proposed permit will set a limit on the acute or chronic toxicity. The proposed permit will then require the Permittee to conduct WET testing in order to monitor for compliance with either an acute toxicity limit, a chronic toxicity limit, or both an acute and a chronic toxicity limit. The proposed permit also specifies the procedures the Permittee must use to come back into compliance if the limits are exceeded.

Accredited WET testing laboratories have the proper WET testing protocols, data requirements, and reporting format. Accredited laboratories are knowledgeable about WET testing and capable of calculating an NOEC, LC₅₀, EC₅₀, IC₂₅, etc. All accredited labs have been provided the most recent version of the Department of Ecology Publication # WQ-R-95-80, *Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria* which is referenced in the permit. Any Permittee interested in receiving a copy of this publication may call the Ecology Publications Distribution Center 360-407-7472 for a copy. The Department recommends that Permittees send a copy of the acute or chronic toxicity sections(s) of their permits to their laboratory of choice.

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When the WET tests during effluent characterization indicate that no reasonable potential exists to cause receiving water toxicity, the Permittee will not be given WET limits and will only be required to retest the effluent prior to application for permit renewal in order to demonstrate that toxicity has not increased in the effluent.

If the Permittee makes process or material changes which, in the Department's opinion, results in an increased potential for effluent toxicity, then the Department may require additional effluent characterization in a regulatory order, by permit modification, or in the permit renewal. Toxicity is assumed to have increased if WET testing conducted for submission with a permit application fails to meet the performance standards in WAC 173-205-020, "whole effluent toxicity performance standard". The Permittee may demonstrate to the Department that changes have not increased effluent toxicity by performing additional WET testing after the time the process or material changes have been made.

HUMAN HEALTH

Washington's water quality standards now include 91 numeric health-based criteria that must be considered in NPDES permits. These criteria were promulgated for the state by the U.S. EPA in its National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992).

The Department has determined that the applicant's discharge is undergoing technology-based upgrades based on a Department order and permit and thus should be regulated for human health based criteria only after upgrades are completed. The discharge will be re-evaluated for impacts to human health at the next permit reissuance.

SEDIMENT QUALITY

The Department has promulgated aquatic sediment standards (Chapter 173-204 WAC) to protect aquatic biota and human health. These standards state that the Department may require Permittees to evaluate the potential for the discharge to cause a violation of applicable standards (WAC 173-204-400).

The Department has determined through a review of the discharger characteristics and effluent characteristics that this discharge has no reasonable potential to violate the Sediment Management Standards.

COMPARISON OF EFFLUENT LIMITS WITH THE EXISTING PERMIT ISSUED February 17, 1988

Parameter	Existing Effluent Limits	New Effluent Limits
BOD5	30 mg/L	(same)
TSS	30 mg/L	(same)
pH	6.0 to 9.0	(same)
Fecal Coliform	200/100 ml, 400/100 ml	(same)
	(average weekly) ¹	(daily maximum) ¹
Chlorine Residual	0.15 mg/L, 0.23 mg/L	0.16 mg/L, 0.33 mg/L
Ammonia (as N)	20.9 mg/L, 31.3 mg/L	21.1 mg/L, 42.3 mg/L

¹ The previous permit that was issued in 1988 preceded the development of the Permit Writers Manual and the application of Water Quality based effluent limitations as per WAC 173-201A. These documents

changed the permit effluent limitations based on water quality considerations for the acute mixing zone to a daily maximum from the average limitation.

MONITORING REQUIREMENTS

Monitoring, recording, and reporting are required (WAC 173-220-210 and 40 CFR 122.41) to verify that the treatment process is functioning correctly and the effluent limitations are being achieved.

Monitoring for metals is being required to further characterize the effluent. These pollutants could have a significant impact on the quality of the surface water.

The monitoring schedule is detailed in the proposed permit under Condition S.2. Specified monitoring frequencies take into account the quantity and variability of discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring. The required monitoring frequency is consistent with agency guidance given in the current version of the Department's *Permit Writer's Manual* (July 1994) for activated sludge facility > 2.0 MGD.

LAB ACCREDITATION

With the exception of certain parameters the permit requires all monitoring data to be prepared by a laboratory registered or accredited under the provisions of Chapter 173-50 WAC, *Accreditation of Environmental Laboratories*. The laboratory at this facility is accredited for BOD5, TSS, chlorine residual, fecal coliform, ammonia, and pH:

OTHER PERMIT CONDITIONS

REPORTING AND RECORDKEEPING

The conditions of S3. are based on the authority to specify any appropriate reporting and recordkeeping requirements to prevent and control waste discharges (WAC 273-220-210).

PREVENTION OF FACILITY OVERLOADING

Overloading of the treatment plant is a violation of the terms and conditions of the permit. To prevent this from occurring, RCW 90.48.110 and WAC 173-220-150 require the Permittee to take the actions detailed in proposed permit requirement S.4. to plan expansions or modifications before existing capacity is reached and to report and correct conditions that could result in new or increased discharges of pollutants. Condition S.4. restricts the amount of flow.

OPERATION AND MAINTENANCE (O&M)

The proposed permit contains condition S.5. as authorized under RCW 90.48.110, WAC 173-220-150, Chapter 173-230 WAC, and WAC 173-240-080. It is included to ensure proper operation and regular maintenance of equipment, and to ensure that adequate safeguards are taken so that constructed facilities are used to their optimum potential in terms of pollutant capture and treatment. The operator shall take particular attention to the process control requirements identified in the O&M Manual. These requirements are important in the proper operation of an activated sludge treatment facility.

RESIDUAL SOLIDS HANDLING

To prevent water quality problems the Permittee is required in permit condition S7. to store and handle all residual solids (grit, screenings, scum, sludge, and other solid waste) in accordance with the requirements of RCW 90.48.080 and State Water Quality Standards.

The final use and disposal of sewage sludge from this facility is regulated by U.S. EPA under 40 CFR 503. The Solid Waste and Financial Assistant Program of the Department has the responsibility for regulating municipal sludge in Washington state. The City shall contact the Solid Waste Program for guidance on developing a sludge management and disposal plan (360-407-6105). The disposal of other solid waste is under the jurisdiction of the Clark County Health Department.

PRETREATMENT

An industrial user survey is required to determine the extent of compliance of all industrial users of the sanitary sewer and wastewater treatment facility with federal pretreatment regulations (40 CFR Part 403 and Sections 307(b) and 308 of the Clean Water Act), with state regulations (Chapter 90.48 RCW and Chapter 173-216 WAC), and with local ordinances.

FEDERAL AND STATE PRETREATMENT PROGRAM REQUIREMENTS

Under the terms of the addendum to the “Memorandum of Understanding between Washington Department of Ecology and the United States Environmental Protection Agency, Region 10” (1986), the Department has been delegated authority to administer the Pretreatment Program (i.e. act as the Approval Authority for oversight of delegated Publicly Owned Treatment Works (POTWs)). Under this delegation of authority, the Department has exercised the option of issuing wastewater discharge permits for significant industrial users discharging to POTWs which have not been delegated authority to issue wastewater discharge permits.

There are a number of functions required by the Pretreatment Program which the Department is delegating to such POTWs because they are in a better position to implement the requirements (e.g. tracking the number and general nature of industrial dischargers to the sewerage system). The requirements for a Pretreatment Program are contained in Title 40, part 403 of the Code of Federal Regulations. Under the requirements of the Pretreatment Program (40 CFR 403.8(f)(1)(iii)), the Department is required to approve, condition, or deny new discharges or a significant increase in the discharge for existing significant industrial users (SIUs) (40 CFR 403.8 (f)(1)(i)).

The Department is responsible for issuing state waste discharge permits to SIUs and other industrial users of the Permittee's sewer system. Industrial dischargers must obtain these permits from the Department prior to the Permittee accepting the discharge (WAC 173-216-110(5)) (Industries discharging wastewater that is similar in character to domestic wastewater are not required to obtain a permit. Such dischargers should contact the Department to determine if a permit is required.). Industrial dischargers need to apply for a state waste discharge permit sixty days prior to commencing discharge. The conditions contained in the permits will include any applicable conditions for categorical discharges, loading limitations included in contracts with the POTW, and other conditions necessary to assure compliance with state water quality standards and biosolids standards.

The Department requires this POTW to fulfill some of the functions required for the Pretreatment Program in the NPDES permit (e.g. tracking the number and general nature of industrial dischargers to the sewerage system). The POTW's NPDES permit will require that all SIUs currently discharging to the POTW be identified and notified of the requirement to apply for a wastewater discharge permit from the Department. None of the obligations imposed on the POTW relieve an industrial or commercial discharger of its primary responsibility for obtaining a wastewater discharge permit (if required),

FACT SHEET FOR NPDES PERMIT NO. WA0037427
CITY OF WASHOUGAL

including submittal of engineering reports prior to construction or modification of facilities (40 CFR 403.12(j) and WAC 173-216-070 and WAC 173-240-110, et seq.).

WASTEWATER PERMIT REQUIRED

RCW 90.48 and WAC 173-216-040 require SIUs to obtain a permit prior to discharge of industrial waste to the Permittee's sewerage system. This provision prohibits the POTW from accepting industrial wastewater from any such dischargers without authorization from the Department.

REQUIREMENTS FOR ROUTINE IDENTIFICATION AND REPORTING OF INDUSTRIAL USERS

The NPDES permit requires non-delegated POTWs to "take continuous, routine measures to identify all existing, new, and proposed SIUs and potential significant industrial users (PSIUs) discharging to the Permittee's sewerage system". Examples of such routine measures include regular review of business tax licenses for existing businesses and review of water billing records and existing connection authorization records. System maintenance personnel can also be diligent during performance of their jobs in identifying and reporting as-yet-unidentified industrial dischargers. Local newspapers, telephone directories, and word-of-mouth can also be important sources of information regarding new or existing discharges. The POTW is required to notify an industrial discharger, in writing, of their responsibilities regarding application for a state waste discharge permit and to send a copy of the written notification to the Department. The Department will then take steps to solicit a state waste discharge permit application.

REQUIREMENTS FOR PERFORMING AN INDUSTRIAL USER SURVEY

This POTW has the potential to serve significant industrial or commercial users and is required to perform an Industrial User Survey. The goal of this survey is to develop a list of SIUs and PSIUs, and of equal importance, to provide sufficient information about industries which discharge to the POTW, to determine which of them require issuance of state waste discharge permits or other regulatory controls. An Industrial User Survey is an important part of the regulatory process used to prevent interference with treatment processes at the POTW and to prevent the exceedance of water quality standards. The Industrial User Survey also can be used to contribute to the maintenance of sludge quality, so that sludge can be a useful biosolids product rather than an expensive waste problem. An Industrial User Survey is a rigorous method for identifying existing, new, and proposed significant industrial users and potential significant industrial users. A complete listing of methodologies is available in the Department guidance document entitled "Conducting an Industrial User Survey."

DUTY TO ENFORCE DISCHARGE PROHIBITIONS

This provision prohibits the POTW from authorizing or permitting an industrial discharger to discharge certain types of waste into the sanitary sewer. The first portion of the provision prohibits acceptance of pollutants which cause pass through or interference. The definitions of pass through and interference are in Appendix B of the fact sheet..

The second portion of this provision prohibits the POTW from accepting certain specific types of wastes, namely those which are explosive, flammable, excessively acidic, basic, otherwise corrosive, or obstructive to the system. In addition wastes with excessive BOD, petroleum based oils, or which result in toxic gases are prohibited to be discharged. The regulatory basis for these prohibitions is 40 CFR Part 403, with the exception of the pH provisions which are based on WAC 173-216-060.

The third portion of this provision prohibits certain types of discharges unless the POTW receives prior authorization from the Department. The discharges include cooling water in significant volumes, stormwater and other direct inflow sources, and wastewaters significantly affecting system hydraulic loading, which do not require treatment.

SUPPORT BY THE DEPARTMENT FOR DEVELOPING PARTIAL PRETREATMENT PROGRAM BY POTW

The Department has committed to providing technical and legal assistance to the Permittee in fulfilling these joint obligations, in particular assistance with developing an adequate sewer use ordinance, notification procedures, enforcement guidelines, and developing local limits and inspection procedures.

OUTFALL EVALUATION

Proposed permit condition S10. requires the Permittee to conduct an outfall inspection and submit a report detailing the findings of that inspection. The purpose of the inspection is to determine the condition of the discharge pipe and diffusers and to determine if sediment is accumulating in the vicinity of the outfall.

GENERAL CONDITIONS

General Conditions are based directly on state and federal law and regulations and have been standardized for all individual municipal NPDES permits issued by the Department.

Condition G1 requires responsible officials or their designated representatives to sign submittals to the Department. Condition G2 requires the Permittee to allow the Department to access the treatment system, production facility, and records related to the permit. Condition G3 specifies conditions for modifying, suspending or terminating the permit. Condition G4 requires the Permittee to apply to the Department prior to increasing or varying the discharge from the levels stated in the permit application. Condition G5 requires the Permittee to construct, modify, and operate the permitted facility in accordance with approved engineering documents. Condition G6 prohibits the Permittee from using the permit as a basis for violating any laws, statutes or regulations. Conditions G7 relates to permit renewal. Condition G8 prohibits the reintroduction of removed substances back into the effluent. Condition G9 states that the Department will modify or revoke and reissue the permit to conform to more stringent toxic effluent standards or prohibitions. Condition G10 incorporates by reference all other requirements of 40 CFR 122.41 and 122.42. Condition G11 notifies the Permittee that additional monitoring requirements may be established by the Department. Condition G12 requires the payment of permit fees. Condition G13 describes the penalties for violating permit conditions.

PERMIT ISSUANCE PROCEDURES

PERMIT MODIFICATIONS

The Department may modify this permit to impose numerical limitations, if necessary to meet Water Quality Standards, Sediment Quality Standards, or Ground Water Standards, based on new information obtained from sources such as inspections, effluent monitoring, outfall studies, and effluent mixing studies.

The Department may also modify this permit as a result of new or amended state or federal regulations.

RECOMMENDATION FOR PERMIT ISSUANCE

This proposed permit meets all statutory requirements for authorizing a wastewater discharge, including those limitations and conditions believed necessary to protect human health, aquatic life, and the beneficial uses of waters of the state of Washington. The Department proposes that this permit be issued for five years.

REFERENCES FOR TEXT AND APPENDICES

Environmental Protection Agency (EPA)

- 1992. National Toxics Rule. Federal Register, V. 57, No. 246, Tuesday, December 22, 1992.
- 1991. Technical Support Document for Water Quality-based Toxics Control. EPA/505/2-90-001.
- 1988. Technical Guidance on Supplementary Stream Design Conditions for Steady State Modeling. USEPA Office of Water, Washington, D.C.
- 1985. Water Quality Assessment: A Screening Procedure for Toxic and Conventional Pollutants in Surface and Ground Water. EPA/600/6-85/002a.
- 1983. Water Quality Standards Handbook. USEPA Office of Water, Washington, D.C.

Metcalf and Eddy.

- 1991. Wastewater Engineering, Treatment, Disposal, and Reuse. Third Edition.

Tsivoglou, E.C., and J.R. Wallace.

- 1972. Characterization of Stream Reaeration Capacity. EPA-R3-72-012. (Cited in EPA 1985 op.cit.)

Wallis Engineering.

- 1995. Facilities Plan for the City of Washougal, Washington

Washington State Department of Ecology.

- 1994. Permit Writer's Manual. Publication Number 92-109

Water Pollution Control Federation.

- 1976. Chlorination of Wastewater.

Wright, R.M., and A.J. McDonnell.

- 1979. In-stream Deoxygenation Rate Prediction. Journal Environmental Engineering Division, ASCE. 105(E2). (Cited in EPA 1985 op.cit.)

APPENDIX A--PUBLIC INVOLVEMENT INFORMATION

The Department has tentatively determined to reissue a permit to the applicant listed on page 1 of this fact sheet. The permit contains conditions and effluent limitations which are described in the rest of this fact sheet.

Public notice of application was published on August 30, 1998, and September 6, 1998, in the *Columbian* to inform the public that an application had been submitted and to invite comment on the reissuance of this permit.

The Department published a Public Notice of Draft (PNOD), in the *Camas Washougal Post* on December 29, 1998, to inform the public that a draft permit and fact sheet are available for review. Interested persons are invited to submit written comments regarding the draft permit. The draft permit, fact sheet, and related documents are available for inspection and copying between the hours of 8:00 a.m. and 5:00 p.m. weekdays, by appointment, at the regional office listed below. Written comments should be mailed to:

Water Quality Permit Coordinator
Department of Ecology
Southwest Regional Office
P.O. Box 47775
Olympia, WA 98504-7775.

Any interested party may comment on the draft permit or request a public hearing on this draft permit within the thirty (30) day comment period to the address above. The request for a hearing shall indicate the interest of the party and the reasons why the hearing is warranted. The Department will hold a hearing if it determines there is a significant public interest in the draft permit (WAC 173-220-090). Public notice regarding any hearing will be circulated at least thirty (30) days in advance of the hearing. People expressing an interest in this permit will be mailed an individual notice of hearing (WAC 173-220-100).

Comments should reference specific text followed by proposed modification or concern when possible. Comments may address technical issues, accuracy and completeness of information, the scope of the facility's proposed coverage, adequacy of environmental protection, permit conditions, or any other concern that would result from issuance of this permit.

The Department will consider all comments received within thirty (30) days from the date of public notice of draft indicated above, in formulating a final determination to issue, revise, or deny the permit. The Department's response to all significant comments is available upon request and will be mailed directly to people expressing an interest in this permit.

Further information may be obtained from the Department by telephone, (360) 407-6279, or by writing to the address listed above.

This permit and fact sheet were written by Jerry Anderson.

APPENDIX B--GLOSSARY

Acute Toxicity--The lethal effect of a pollutant on an organism that occurs within a short period of time, usually 48 to 96 hours.

AKART-- An acronym for "all known, available, and reasonable methods of prevention, control, and treatment".

Ambient Water Quality--The existing environmental condition of the water in a receiving water body.

Ammonia--Ammonia is produced by the breakdown of nitrogenous materials in wastewater. Ammonia is toxic to aquatic organisms, exerts an oxygen demand, and contributes to eutrophication. It also increases the amount of chlorine needed to disinfect wastewater.

Average Monthly Discharge Limitation --The highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month (except in the case of fecal coliform). The daily discharge is calculated as the average measurement of the pollutant over the day.

Average Weekly Discharge Limitation -- The highest allowable average of daily discharges over a calendar week, calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week. The daily discharge is calculated as the average measurement of the pollutant over the day.

Best Management Practices (BMPs)--Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the state. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may be further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

BOD₅--Determining the Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD₅ is used in modeling to measure the reduction of dissolved oxygen in a receiving water after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD is not a specific compound, it is defined as a conventional pollutant under the federal Clean Water Act.

Bypass--The intentional diversion of waste streams from any portion of a treatment facility.

Chlorine--Chlorine is used to disinfect wastewaters of pathogens harmful to human health. It is also extremely toxic to aquatic life.

Chronic Toxicity--The effect of a pollutant on an organism over a relatively long time, often 1/10 of an organism's lifespan or more. Chronic toxicity can measure survival, reproduction or growth rates, or other parameters to measure the toxic effects of a compound or combination of compounds.

Clean Water Act (CWA)--The Federal Water Pollution Control Act enacted by Public Law 92-500, as amended by Public Laws 95-217, 95-576, 96-483, 97-117; USC 1251 et seq.

Combined Sewer Overflow (CSO)--The event during which excess combined sewage flow caused by inflow is discharged from a combined sewer, rather than conveyed to the sewage treatment plant because either the capacity of the treatment plant or the combined sewer is exceeded.

Compliance Inspection - Without Sampling--A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations.

Compliance Inspection - With Sampling--A site visit to accomplish the purpose of a Compliance Inspection - Without Sampling and as a minimum, sampling and analysis for all parameters with limits in the permit to ascertain compliance with those limits; and, for municipal facilities, sampling of influent to ascertain compliance with the percent removal requirement. Additional sampling may be conducted.

Composite Sample--A mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing a minimum of four discrete samples. May be "time-composite"(collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increased while maintaining a constant time interval between the aliquots.

Construction Activity--Clearing, grading, excavation and any other activity which disturbs the surface of the land. Such activities may include road building, construction of residential houses, office buildings, or industrial buildings, and demolition activity.

Critical Condition--The time during which the combination of receiving water and waste discharge conditions have the highest potential for causing toxicity in the receiving water environment. This situation usually occurs when the flow within a water body is low, thus, its ability to dilute effluent is reduced.

Dilution Factor--A measure of the amount of mixing of effluent and receiving water that occurs at the boundary of the mixing zone. Expressed as the inverse of the effluent fraction e.g., a dilution factor of 10 means the effluent comprises 10% by volume and the receiving water 90%.

Engineering Report--A document which thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report shall contain the appropriate information required in WAC 173-240-060 or 173-240-130.

Fecal Coliform Bacteria--Fecal coliform bacteria are used as indicators of pathogenic bacteria in the effluent that are harmful to humans. Pathogenic bacteria in wastewater discharges are controlled by disinfecting the wastewater. The presence of high numbers of fecal coliform bacteria in a water body can indicate the recent release of untreated wastewater and/or the presence of animal feces.

Grab Sample--A single sample or measurement taken at a specific time or over as short period of time as is feasible.

Industrial User-- A discharger of wastewater to the sanitary sewer which is not sanitary wastewater or is not equivalent to sanitary wastewater in character.

Industrial Wastewater--Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business, from the development of any natural resource, or from animal operations such as feed lots, poultry houses, or dairies. The term includes contaminated storm water and, also, leachate from solid waste facilities.

Infiltration and Inflow (I/I)--"Infiltration" means the addition of ground water into a sewer through joints, the sewer pipe material, cracks, and other defects. "Inflow" means the addition of precipitation-caused drainage from roof drains, yard drains, basement drains, street catch basins, etc., into a sewer.

Interference -- A discharge which, alone or in conjunction with a discharge or discharges from other sources, both:

Inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal and;

Therefore is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation) or of the prevention of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent state or local regulations): Section 405 of the Clean Water Act, the Solid Waste Disposal Act (SWDA) (including title II, more commonly referred to as the Resource Conservation and Recovery Act (RCRA), and including state regulations contained in any state sludge management plan prepared pursuant to subtitle D of the SWDA), sludge regulations appearing in 40 CFR Part 507, the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection, Research and Sanctuaries Act.

Major Facility--A facility discharging to surface water with an EPA rating score of > 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Maximum Daily Discharge Limitation--The highest allowable daily discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. The daily discharge is calculated as the average measurement of the pollutant over the day.

Method Detection Level (MDL)--The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is above zero and is determined from analysis of a sample in a given matrix containing the analyte.

Minor Facility--A facility discharging to surface water with an EPA rating score of < 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Mixing Zone--A volume that surrounds an effluent discharge within which water quality criteria may be exceeded. The area of the authorized mixing zone is specified in a facility's permit and follows procedures outlined in state regulations (Chapter 173-201A WAC).

National Pollutant Discharge Elimination System (NPDES)--The NPDES (Section 402 of the Clean Water Act) is the federal wastewater permitting system for discharges to navigable waters of the United States. Many states, including the state of Washington, have been delegated the authority to issue these permits. NPDES permits issued by Washington state permit writers are joint NPDES/State permits issued under both state and federal laws.

Pass through -- A discharge which exits the POTW into waters of the state in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation), or which is a cause of a violation of state water quality standards.

pH--The pH of a liquid measures its acidity or alkalinity. A pH of 7 is defined as neutral, and large variations above or below this value are considered harmful to most aquatic life.

Potential Significant Industrial User--A potential significant industrial user is defined as an Industrial User which does not meet the criteria for a Significant Industrial User, but which discharges wastewater meeting one or more of the following criteria:

- a. Exceeds 0.5 % of treatment plant design capacity criteria and discharges $< 25,000$ gallons per day or;
- b. Is a member of a group of similar industrial users which, taken together, have the potential to cause pass through or interference at the POTW (e.g. facilities which develop photographic film or paper, and car washes).

The Department may determine that a discharger initially classified as a potential significant industrial user should be managed as a significant industrial user.

Quantitation Level (QL)-- A calculated value five times the MDL (method detection level).

Significant Industrial User (SIU)--

- 1) All industrial users subject to Categorical Pretreatment Standards under 40 CFR 403.6 and 40 CFR Chapter I, Subchapter N and;
- 2) Any other industrial user that: discharges an average of 25,000 gallons per day or more of process wastewater to the POTW (excluding sanitary, noncontact cooling, and boiler blow-down wastewater); contributes a process wastestream that makes up 5 percent or more of the average dry weather hydraulic or organic capacity of the POTW treatment plant; or is designated as such by the Control Authority* on the basis that the industrial user has a reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement (in accordance with 40 CFR 403.8(f)(6)).

Upon finding that the industrial user meeting the criteria in paragraph 2, above, has no reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement, the Control Authority* may at any time, on its own initiative or in response to a petition received from an industrial user or POTW, and in accordance with 40 CFR 403.8(f)(6), determine that such industrial user is not a significant industrial user.

*The term "Control Authority" refers to the Washington State Department of Ecology in the case of non-delegated POTWs or to the POTW in the case of delegated POTWs.

State Waters--Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, wetlands, and all other surface waters and watercourses within the jurisdiction of the state of Washington.

Stormwater--That portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a storm water drainage system into a defined surface water body, or a constructed infiltration facility.

Technology-based Effluent Limit--A permit limit that is based on the ability of a treatment method to reduce the pollutant.

Total Suspended Solids (TSS)--Total suspended solids are the particulate materials in an effluent. Large quantities of TSS discharged to a receiving water may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, suspended solids may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory passages of various aquatic fauna. Indirectly, suspended solids can screen out light and can promote and maintain the development of noxious conditions through oxygen depletion.

Upset--An exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, lack of preventative maintenance, or careless or improper operation.

Water Quality-based Effluent Limit--A limit on the concentration or mass of an effluent parameter that is intended to prevent the concentration of that parameter from exceeding its water quality criterion after it is discharged into a receiving water.

APPENDIX C--TECHNICAL CALUCATIONS

APPENDIX D--RESPONSE TO COMMENTS

Permit Type: National Pollutant Discharge Elimination System (NPDES) Permit

Permit Number: WA0037427

Permittee: City of Washougal
1701 "C" Street
Washougal, WA 98671

Permitting Authority: Washington State Department of Ecology
Southwest Regional Office
P.O. Box 47775
Olympia, WA 98504-7775

Ecology has either quoted or paraphrased the comments. The comments, Ecology's response, and the resulting permit action follow:

Comments received from the City of Washougal, dated January 12, 1999, on the Public Review draft of NPDES Permit No. WA0037427

1. Comment:

I was wondering why the frequency of the BOD5 and TSS testing has increased from 2/week to 3/week. The fact sheets states, "Specified monitoring frequencies take into account the quantity and variability of discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring." If the increased frequencies for BOD5 and TSS are due to the 'past compliance', I feel that should not affect the frequencies because of the difference in process. The old compliance problems came from the fact that the process was a lagoon system and dry weather caused the problems with compliance. The new oxidation ditch will not be affected by this problem. Therefore, I feel that the frequency for BOD5 and TSS testing should not be changed due to the "variability of compliance." I also feel that the same argument can be used for the "variability of discharge."

Response:

The changes to the BOD5 and TSS testing schedule are the minimum testing schedules in Chapter XIII of the Ecology Permit Writers Manual on Table XIII-1D. RECOMMENDED MINIMUM MONITORING FOR POTWs DISCHARGING TO SURFACE WATERS—for an Activated Sludge Plant with a 2.0 – 5.0 MGD average design flow.

2. Comment:

The draft permit shows the frequency of testing of the effluent for temperature, pH and total chlorine residual as daily. This would mean that an operator would have to work on the weekends to do the testing.

Does this mean that we will be on a seven day, eight hour per day schedule?

Response:

Refer to the above referenced Table XIII-D for frequency of testing for pH and total chlorine residual. Total chlorine residual (i.e., fecal coliform problem), pH and temperature are also added to the testing schedule because they are pollutants of concern [303(d) list] listed for the Columbia River at this location. Ecology will be doing a Total Maximum Daily Load study for these pollutants at this location of the river and the information is required.

Whether or not an operator is required for seven-day/eight-hour shifts is the City's call. However, the testing schedule does require that the tests be taken daily. The tests will certainly take less than eight hours. On weekends, an operator could come in just for the required time to do and record the tests. It must be pointed out that activated sludge facilities of this size (2.24 MGD) have operators assigned on weekends to perform other maintenance and testing requirements.

Comments received from the Wallis Engineering, dated January 26, 1999, on the Public Review draft of NPDES Permit No. WA0037427

1. Comment:

Background information, Description of the Facility, History: It is stated that "The new upgrade was completed in December 1998." This is not correct, the treatment plant is scheduled to be completed in July 1999.

It is stated that there is a "rotary screen (with mechanical rake)." The existing screen is actually a mechanically cleaned spiral screen.

It is stated that there is an "influent pump station (two parallel screw pumps with design for third pump)." The influent pump station will actually be a triplex submersible pump station.

Response:

The comments are noted and the permit fact sheet was amended to include the above changes.

Comments received from the Esvelt Environmental Engineering, dated January 26, 1999, on the Public Review draft of NPDES Permit No. WA0037427

FACT SHEET COMMENTS

1. Comment:

Date of completion of new extended aeration activated sludge facilities will be spring 1999, with startup expected to be completed and compliance with design capability approximately July 1, 1999.

Response:

The date of startup is changed to July 1999 and the Effective Date of the permit will be changed to August 1, 1999.

2. Comment:

Page 2, paragraph 3 – Treatment system consists of 1) headworks with inclined spiral screen, new submersible pumps, and flow meter; 2) oxidation ditch activated sludge aeration basin; 3) secondary clarifier; 4) disinfection by chlorination and chlorine contact basins; 5) effluent metering; 6) effluent pump station; and 7) outfall to Columbia River. Peak flows are stored in existing lagoon No. 1. Sludge is stored in existing lagoons No. 2, 3, and 4.

Response:

The fact sheet is changed to reflect the above information.

3. Comment:

Page 2, paragraph 6 – Concrete in itself does not leak or cause leakage, but the type of sealing between joints may cause I/I.

Response:

Technically you are right. Concrete pipe is more prone to I/I due to the type of joint material. The statement is changed to state that I/I is due mainly to the joint material.

4. Comment:

Table 1 – unclear as to meaning and source of numbers. Numbers in parentheses and bold appear to be suggested Permit limits, but this isn't called out, and the entries are incomplete.

Response:

This table shows the comparison between the data on the permit application (i.e., 1.564 MGD), the new design criteria (i.e., 2.24 MGD), and the performance data obtained from the DMRs (i.e., 0.983 MGD). The object is to show that the new facility is capable of handling more flows and loadings. The table is not a means to set limits but to show if the facility is capable of handling the existing flows and loadings at the time of the application. Therefore, by including the existing DMR data and the new design data, the table shows that the facility has capacity for this permit term. A statement is added at the bottom of the table to reflect this response to comment.

5. Comment:

Page 7, paragraph 6 & page 8, paragraph 1 – surface water quality criteria are described as for the Columbia River for FC, DO, Temp. and pH, and for discharges to the river for Turbidity and Toxics. Therefore, the text is misleading.

Response:

The water quality parameters (FC, DO, Temp., pH, Turbidity and Toxics) relate to both the river conditions (temp, DO, toxic concentrations, pH, etc.) and the concentrations in the discharges (BOD5, DO, pH, Temp. toxic pollutants). The dilution ratios in the defined mixing zones, as described in each section, determine if more stringent effluent limitations are required. These sections are boilerplate language for all permits and the permit manager provides the actual numerical data in these sections.

6. Comment:

Page 8, Table at bottom of page – slope should indicate “Tidally influenced but not tidally reversing.”

Response:

The Table is changed to indicate the slope as “Tidally Influenced”

7. Comment:

Page 9, paragraph 9 (Table) – It is not clear how these numbers were derived from Appendix C.

Response:

Appendix C includes tables for calculating effluent limits and Reasonable Determination of effluent limitations base on the spreadsheet TSDCALC6. TSDCALC6.XLW is available for your use from Ecology. Please contact Wil Kendra at 360-407-6698. The spreadsheet is also described in Appendix 15 of Ecology’s Permit Writers Manual.